CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2008-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF FRESNO, UNITED STATES ARMY CORPS OF ENGINEERS,
UNITED STATES NATIONAL GUARD, AND THE BOEING COMPANY
OLD HAMMER FIELD
FRESNO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) finds that:

TENTATIVE

1. On 21 September 2007, the City of Fresno, United States Army Corps of Engineers, United States National Guard Bureau, and The Boeing Company, a corporation incorporated in the State of Delaware, (hereafter collectively referred to as Discharger) submitted a *Draft Phase II Remedial Design and Implementation Plan* (RDIP) for the extraction, treatment, and reinjection of treated groundwater containing concentrations of trichloroethylene (TCE) at the downgradient treatment area referred to as the "Toe of the Plume". The Discharger also submitted additional information on 7 January 2008 and 9 April 2008. The Discharger will be constructing and operating the remediation system on private property and public right of way.

2. The project site location is shown on Attachment A, which is attached hereto and made part of this Order by reference.

3. The project is in the City of Fresno in the Southwest Quarter of Section 31, T13S, R21E, MDB&M. Single family residences dominate the project area with some commercial properties. State of California Freeway 180 traverses the southern portion of the project area. The project site plan is shown on Attachment B, which is attached hereto and made part of this Order by reference.

4. The objectives of the remediation project are to provide plume control and to treat the TCE-impacted groundwater and return the treated groundwater to the aquifer from which it originated. One, possibly two, groundwater extraction wells will be used to control the migration of, and remediation of, TCE at the Toe of the Plume. TCE will be removed from extracted groundwater by filtration through granular activated carbon (GAC) vessels and the treated groundwater will be returned to the aquifer through two, possibly three, injection wells.

Project Layout and Operation

5. Groundwater beneath the project site contains the pollutant TCE. TCE is a solvent used primarily in cleaning operations and has a Maximum Contaminant Level (MCL) of 5 µg/L set as a drinking water standard by the California Department of Public Health. In addition, the California Office of Environmental Health Hazard Assessment has established the

Public Health Goal for TCE in water at 0.8 µg/L. Historically, groundwater at the toe of the plume area has contained up to 26 µg/L TCE.

6. Four impacted sand-bearing stratigraphic units, informally labeled by the Discharger as the C, D, E, and F zones, have been identified based on lateral traceability using electric and soil core logs. These zones range in depth from approximately 150 feet to nearly 300 feet below ground surface. The groundwater extraction and treatment system will be targeting groundwater in these four zones.

7. One extraction well, HFEW-1, has been installed. The screen intervals in Extraction Well HFEW-1 extend from 152-202, 217-257, and 267-282 feet below grade. The groundwater is flowing west-southwest underneath the project area. If monitoring data show a second extraction well is required to capture the entire toe of the plume, then a second extraction well will be installed.

8. Two injection wells, HFIW-1 and HFIW-2, have been installed. A third injection well will be installed if monitoring data indicate it is needed.

9. The following monitoring wells and peizometers exist at the project site and will be used for toe of the plume monitoring: HFMW-57 C,D,E, &F, HFMW-55D, E, & F; HFMW-30C, D, & E; HFPZ-06; HFMW-49 C & D; HFMW-54 C, D, E & F; HFMW-29C; HFMW-19C, and HFMW-53 C, D, E & F. Attachment B shows the location of the extraction wells, monitoring wells, and piezometers.

10. Aquifer testing was conducted on Extraction Well HFEW-1. Transmissivity values (T) averaged 3.57 ft^2/min and hydraulic conductivity (K) values averaged 0.0317 ft/min.

11. The treatment system for the extracted groundwater is proposed to be located behind the private residence at 4895 East Tyler Avenue (refer to Attachment B for the location of the treatment system). TCE will be removed by filtration through two 20,000-pound GAC vessels in series prior to discharge into the injection wells. It is anticipated the TCE concentrations in the extracted groundwater stream will initially be approximately 7 µg/L at a pumping rate of 300 gallons per minute (gpm). The GAC vessels have been sized based on this anticipated concentration, but at a pumping rate of 600 gpm. Carbon usage is anticipated to be 35 pounds per day. Change out of the primary GAC vessels is anticipated to not be required for 570 days (19 months).

TENTATIVE

Regulatory Considerations

12. *The Water Quality Control Plan for the Tulare Lake Basin, Second Edition,* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board (State Board). Pursuant to Section 13263(a) of the California Water Code (CWC), waste discharge requirements must implement the Basin Plan.

13. The site is within Detailed Analysis Unit (DAU) 233. The designated beneficial uses of underlying groundwater include:

a. Municipal and domestic water supply (MUN);
b. Agricultural water supply (AGR);
c. Industrial service supply (IND); and
d. Industrial process supply (PRO).

14. The Basin Plan establishes numerical and narrative water quality objectives for surface and groundwater within the basin, and recognizes that water quality objectives are achieved primarily through the Regional Water Board's adoption of waste discharge requirements and enforcement orders. Where numerical water quality objectives are listed, these are limits necessary for the reasonable protection of beneficial uses of the water. Where compliance with narrative water quality objectives is required, the Board will, on a case-by-case basis, adopt numerical limitations in orders, which will implement the narrative objectives to protect beneficial uses of the waters of the state.

15. The Basin Plan identifies numerical water quality objectives for waters designated as municipal supply. These are the maximum contaminant levels (MCLs) specified in Title 22, California Code of Regulations. The Basin Plan recognizes that the Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

16. The Basin Plan contains narrative water quality objectives for chemical constituents, tastes and odors, and toxicity. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, or animals. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The taste and odor objective requires that groundwater shall not contain taste- or odor-producing substances that cause nuisance or adversely affect beneficial uses.

17. This Order contains restrictions on individual pollutants. The effluent limitations for TCE and other volatile organic compounds (VOCs) are based on limits as proposed by the discharger and achieved by similar treatment systems. Effluent limitations in this Order for TCE have been scientifically derived to protect beneficial uses and to comply with State Water Board Resolution 92-49 (hereafter Resolution No. 92-49), which requires cleanup to background where technically and economically feasible. The requirements of the Order take into consideration past, present, and probable future beneficial uses of the receiving waters, the environmental characteristics, including water quality, of the Tulare Lake Hydrologic Region, coordinated control of all factors which affect water quality in the area, and the need to develop and use recycled water. Coordinated control of other discharges would not eliminate the need for this cleanup, and it would be inappropriate to require other dischargers to comply with more stringent limits to provide assimilative capacity due to this discharge. The cleanup of the aquifer will not impede economic or housing growth in the area. Other dischargers throughout the state must comply with similar limits. No

evidence in the record supports failing to protect beneficial uses due to cost considerations.

18. State Water Board Resolution No. 92-49 (hereafter Resolution No. 92-49) requires the Regional Water Board to require actions for cleanup and abatement of discharges that cause or threaten to cause pollution or nuisance to conform to the provisions of Resolution No. 68-16 and the Basin Plan. Pursuant to Resolution No. 92-49, the Regional Water Board shall ensure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality, or if background levels of water quality cannot be restored, the best water quality which is reasonable and which complies with the Basin Plan including applicable WQOs.

19. State Water Board Resolution No. 68-16 requires regulating discharges to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and potential beneficial uses, and will not result in water quality less than that described in plans and policies (e.g., quality that exceeds WQOs).

20. These Waste Discharge Requirements deal with water quality as it relates to the injection of the treated groundwater. TCE concentrations in the treated injected groundwater shall be less than the practical quantitation limit (0.5 µg/L) and less than the concentration of TCE in the groundwater aquifer into which it is being discharged. This Order requires monitoring to confirm that the reinjected groundwater meets the requirements of this Order, does not introduce new waste constituents into the groundwater, and does not cause or contribute to plume migration. The discharge will improve, not degrade, the quality of groundwater at the Toe of the Plume.

21. The City of Fresno Planning and Development Department, in compliance with the California Environmental Quality Act (CEQA), submitted a mitigated negative declaration to the State Clearinghouse (SCH # 20071210018) on 9 June 2008, with a public review period that ended on 8 July 2008. Mitigation measures include impacts to air quality, noise, potential exposure to hazardous materials, and the creation of aesthetically offensive conditions. No public comments were received on the document. The mitigated negative declaration concluded “that the proposed land uses will not result in a significant indirect adverse environmental effect” and it is “determined that there is no substantial evidence in the record that the proposed project may have a significant effect on the environment.” The Notice of Determination was filed with the Fresno County Clerk by the City of Fresno Planning and Development Department on 5 August 2008. The Regional Water Board reviewed and considered the mitigated negative declaration prepared by the City of Fresno and concurs that the project will not have any significant adverse effect on water quality.

22. The discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste,* set forth in the Title 27, California Code of Regulations (CCR), section 20005 *et seq*. (hereafter Title 27),

TENTATIVE

specifically section 20090 (c), which exempts discharges of waste to wells by injection pursuant to the Underground Injection Control (UIC) Program established by the United States Environmental Protection Agency (USEPA) under the Safe Drinking Water Act, [42 U.S. Code Section 300(h), see Title 40 of the Code of Federal Regulations, Parts 144 to 146, 40 CFR 144 to 146]. The Discharger complies with the UIC Program in accordance with section 144.84 (a) General Authorization by Rule.

23. Section 13267(b) of the California Water Code provides that:

"In conducting an investigation specified in subdivision (a), the Regional Water Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring these reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

TENTATIVE

24. The technical reports required by this Order and the attached MRP No. R5-2008-xxxx are necessary to assure compliance with these WDRs. The Discharger operates the treatment system that discharges the waste subject to this Order.

25. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells, as described in *California Well Standards Bulletin No. 74-90* (June 1991) and *Water Well Standards: State of California Bulletin No. 94-81* (December 1981). These standards, and any more stringent standards implemented by the Regional Water Board or adopted by Fresno County pursuant to California Water Code Section 13801, apply to all monitoring, extraction, and injection wells.

26. Section 3020(b)(2) of the Resource Conservation and Recovery Act (RCRA) states that prior to injection into or above an underground source of drinking water, contaminated groundwater shall be "…treated to substantially reduce hazardous constituents prior to such injection." The injection of groundwater within the treatment zone at this site, with the treatment for TCE, complies with Section 3020(2)(b) of RCRA.

27. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

28. All the above and the supplemental data and information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

29. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the GAC treatment technology discussed in this Order, and has provided them with an opportunity to submit their written comments and recommendations.

30. In a public meeting, all comments pertaining to these Waste Discharge Requirements were heard and considered.

TENTATIVE

IT IS HEREBY ORDERED that, pursuant to Sections 13263 and 13267 of the California Water Code, the City of Fresno, the United States Army Corps of Engineers, the United States National Guard Bureau, and The Boeing Company, and their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code, and regulations and guidelines adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of any other materials not specifically regulated by this Order is prohibited.

2. Creation of a pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code (CWC), is prohibited.

3. The discharge of wastes to surface water or surface water drainage courses is prohibited.

4. By-passing or overflow of untreated wastes, except as allowed by Provision E.2 of Standard Provisions and Reportiong Requierments, is prohibited.

5. Discharge of waste classified as “hazardous” under Section 2521, Chapter 15 of Title 23 or ”designated”, as defined in Section 13173 of California Water Code is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The maximum daily flow shall not exceed 900,000 gallons per day (gpd).

2. Effluent concentrations of TCE, the primary constituent of concern, and other volatile organic compounds (VOCs)**,** shall not exceed the practical quantitation limit (PQL) of each specific VOC analyzed under the standard USEPA 8260B analysis for the

monthly median. Currently, the standard PQL for TCE is 0.5 µg/L. The daily maximum shall not exceed the Maximum Contaminant Level (MCL) for TCE and other specific VOCs listed under the standard EPA 8260B analysis. The MCL for TCE is 5.0 µg/L.

C. GROUNDWATER LIMITATIONS

1. The injection of treated water shall not cause or contribute to a significant and consistant increase in the concentration of TCE and other VOCs above the baseline concentrations established for each of the seven compliance monitoring wells listed in in Table 1 of Monitoring and Reporting Program No. R5-2008-XXXX and shown on Attachment B.

D. PROVISIONS

1. The pre-treatment influent and the post-treatment effluent concentrations for calcium, iron, magnesium, manganese, potassium, sodium, chloride, nitrate (as nitrogen), and total dissolved solids (Suite B on Table 2 of the attached Monitoring and Reporting Program No. R5-2008-XXXX), shall not differ significantly. If the difference between the pre-treatment influent and the post-treatment effluent is greater than 20%, the Discharger, within 30-days of discovery, shall submit a report analyzing possible reasons for the difference and possible corrective actions, if necessary.

2. The Discharger shall comply with all applicable Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991, which are attached hereto and by reference are a part of this Order. This attachment and its individual paragraphs are commonly referenced as Standard Provisions.

3. The treated injected groundwater shall not be amended with chemical additives, such as surfactants.

4. All technical reports required herein that involve planning, investigation, evaluation, or design or other work requiring interpretation or proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, Sections 6735, 7835 and 7835.1. To demonstrate compliance with Title 16, CCR, Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

5. **At least 30 days prior to the commencement of operation**, the Discharger shall submit an Operation and Maintenance (O&M) Plan for the groundwater treatment system. The O&M Plan shall instruct field personnel on how to manage the day-to-day

TENTATIVE

discharge operations to comply with the terms and conditions of this Order and how to make field adjustments, as necessary. A copy of the O&M Plan shall be kept at the facility for reference by operating personnel. Key personnel shall be familiar with its contents.

6. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2008-XXXX, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

7. A copy of this Order shall be maintained at the project site and be available at all times to operating personnel.

8. The Discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed by the Discharger to achieve compliance with these Waste Discharge Requirements.

9. The Discharger shall promptly report to the Regional Water Board any violation of this Order, material change in the character, location, or volume of the discharge.

10. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the following items by letter, in advance of the transfer of ownership or control, and a copy of the notice must be forwarded to the Regional Water Board:

    a. existence of this Order; and
    b. the status of the dischargers' annual fee account

11. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the address and telephone number of the persons responsible for contact with the Regional Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with the Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Regional Water Board for its consideration of transferring the ownership of the Order at one of its regularly scheduled meetings.

12. The Regional Water Board may review this Order periodically and may revise requirements when necessary. In addition, the discharger shall file a report of waste discharge with the Executive Officer at least 140 days before making any material change or proposed change in the character, location, or volume of the discharge.

TENTATIVE

I, Pamela C. Creedon, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on Date.

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PAMELA C. CREEDON, Executive Officer

Date GJI

TENTATIVE